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Ullrich–Turner Phenotype With Unusual Manifestation in a Patient With Mosaicism 45,X/47,XX,+18

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We report on a girl with Ullrich–Turner phenotype and 45,X/47,XX,+18 chromosomal mosaicism. Only two other patients with similar mosaicism have been reported, both girls with XY sex chromosome constitution. The face of the patient was highly asymmetric, the right side being almost normal, the left showing a typical Ullrich–Turner syndrome appearance. This clinical impression was strengthened by photographic doubling of both hemifaces. The patient had normal intelligence and did not show any stigmata of trisomy 18. © 1996 Wiley-Liss, Inc.

KEY WORDS: mosaic Ullrich–Turner syndrome, mosaic trisomy 18 syndrome, mosaicism 45,X/47,XX,+18

INTRODUCTION

Individuals with trisomy 18 syndrome have a very short life expectancy. In a study of 101 cases from the literature, Weber et al. [1967] concluded that the chance of survival to 1 month, 1 year, and 10 years is 70, 10, and 1%, respectively. Somewhat different survival data were recently obtained by Root and Carey (1994) and by Baty et al. [1994] as a consequence of prenatal and neonatal diagnosis. Approximately 20% of patients with trisomy 18 are mosaics of the type trisomy 18/normal or trisomy 18 plus a gonosomal aneuploidy (i.e., 48,XXY, +18). A few cases of partial trisomy 18 derived from reciprocal translocations have been described [De Grouchy and Turleau, 1982].

We recently had the opportunity to see an 8½-year-old girl with a chromosomal mosaicism 45,X/47,XX,+18 and prevalent manifestations of Ullrich–Turner syndrome, together with a peculiar facial asymmetry.

CLINICAL REPORT

The proposita was the first child of a 21-year-old mother and a 23-year-old nonconsanguineous father. The parents, her younger sister, and brother were phenotypically normal. The family history was unremarkable. The girl was born at term after an uneventful pregnancy and spontaneous delivery. Birthweight was 2900 g (10th–25th centile); no records of length and head circumference at birth were available. Left palpebral ptosis was noted. Psychomotor development was normal. The parents' main concern was shortness of stature. On clinical examination at age 8½ height was 114 cm (−4 SD), weight 22.5 kg (10th centile), and occipitofrontal circumference (OFC) was 52.5 cm (75th centile). The face was clearly asymmetric, the left side being slightly hypoplastic; the eyes were on different planes (the left lower than the right) and had contrasting palpebral slant (downslant on left, upslant on right); there was also an evident left palpebral ptosis (Fig. 1B). Hypertrichosis over both forearms and hyperconvex toenails were also noted. She had normal flexion creases on both hands, t-axial triradii, 9 worls, and 1 ulnar loop on fingertips. Blood pressure was 105/70 mm Hg, and no audible heart murmurs were present; echographic evaluation of heart and kidneys was normal. Thyroid function and growth hormone stimulation tests were normal. A cytogenetic study on peripheral blood lymphocytes and on skin fibroblasts showed mosaicism 45,X/47,XX, +18 in the absence of a normal cell line (Table I). The metacarpophalangeal profile (MPP) (Fig. 2) on both hands was compatible with the diagnosis of Turner syndrome.

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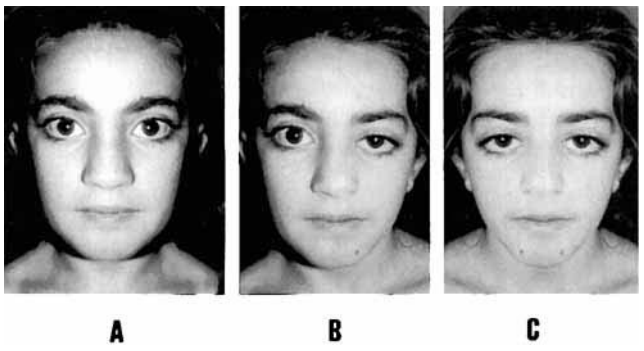

Fig. 1. (**B**) Front view of the patient's face with evident asymmetry. (**A, C**) Photographic doubling of the right and left hemiface, respectively. In A note the upslanting palpebral fissures; in C a typical Ullrich–Turner syndrome face appears with triangular configuration, downslanting palpebral fissures, ptosis, and apparently low-set ears.

TABLE I. Chromosome Analysis in Patients With 45,X/47,XY(XX),+18 Mosaicism

	Source			
	Blood		Skin	
	45,X (%)	47,XY,+18 (%)	45,X (%)	47,XY,+18 (%)
Schinzel et al. [1974]	56	37[a]	93	7
Serville et al. [1977]	53	47	100	0
	45,X	47,XX,+18	45,X	47,XX,+18
Present patient	43	57	83	17

[a]7% of cells had karyotypes with random abnormalities.

DISCUSSION

To our knowledge this is the first patient with 45,X/47,XX, +18 mosaicism. In the literature we could find only 2 other patients with a similar type of mosaicism. Schinzel et al. [1974] described a girl of 14 years with Ullrich–Turner phenotype, normal intelligence, and no signs of trisomy 18. Serville et al. [1977] reported on an 11-month-old girl with Ullrich–Turner phenotype, buphthalmos, and developmental delay. Both patients had 45,X/47,XY,+18 mosaicism; both had an Ullrich–Turner phenotype in accordance with a prevalence of the 45,X line in blood leukocytes and skin fibroblasts (Table I). The effect of the trisomic line was almost nil in the case of Schinzel et al. [1974], while in the Serville et al. [1977] case it could be detected in developmental delay and buphthalmos. An Ullrich–Turner phenotype was also present in our patient. Short stature, hypertrichosis, hyperconvex fingernails, and a typical MPP [Poznanski, 1974] were in fact present. Moreover, Ullrich–Turner traits were particularly evident on the left side of the face, which was highly asymmetric; the right side, with the exception of an upslanting palpebral fissure, was fairly normal. Doubling both hemifaces made from strictly frontal view photographs [Wolff, 1953], using an electronic computerized program, gave strong support to the clinical impression (Fig. 1A and C).

The lack of phenotypic expression of the trisomic line in the presence of a relative high number of trisomic cells may depend on the degree of mosaicism in different specific tissues [Surana et al., 1972]. Normal intelligence has been reported in at least 4 patients with trisomy 18 mosaicism [Kohn and Shohat, 1987; Gersdorf et al., 1990; Sairgol and Rogers, 1994; Butler, 1994].

According to Schinzel et al. [1974] the most probable (and the most thrifty) explanation for the origin of a 45,X/47,XX,+18 mosaic is the loss or the simultaneous nondisjunction of both X and 18 chromosomes during one of the early divisions of an 18-trisomic zygote.

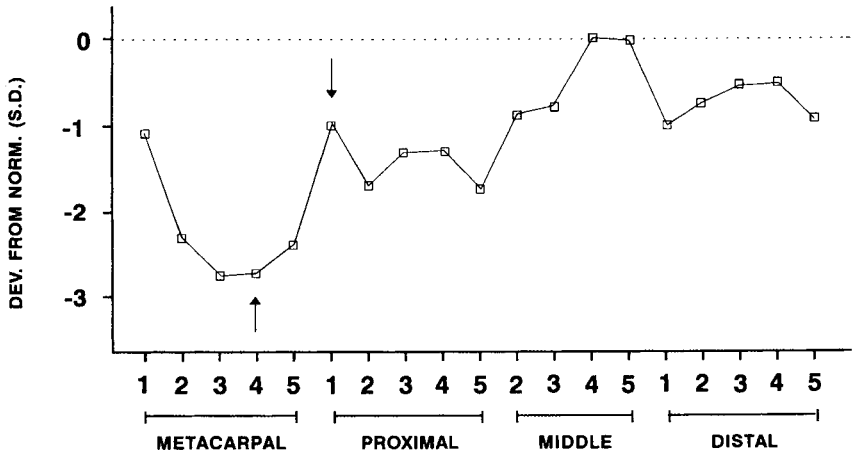

Fig. 2. Patient's left MPP: the arrows point to the fourth short metacarpal and to the relatively long first proximal phalanx, respectively, consistent with a clinical diagnosis of Ullrich–Turner syndrome.

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